wherein the step of calculating the single average value for the plurality of Cr locations comprises the step of] A video compression method for maximizing a throughput of digitized video data on a link between a digital solid-state imaging device and a host computer, comprising the steps of:

performing the luminance (Y) domain compression of the video data on a line-by-line basis without storing video data lines or video data frames by tagging pixels in the video line on a pixel-by-pixel basis, according to differences in their luminance values;

performing the chrominance (Cr/Cb) domain averaging of the video data on a region-by-region basis without storing video data frames, wherein the step of the Cr/Cb domain compression comprises the following steps:

obtaining a single Cr value for each four Cr values in the 4:2:0 format, and obtaining a single Cr value for each eight Cr values in the 4:2:2 format;

calculating a single average value for a plurality of Cb locations; and

transmitting the average Cr and Cb values to the host computer; and

wherein said Y and Cr/Cb domain compression steps are implemented in the digital solid-state imaging device hardware for real time link transmission of the compressed video data to the host computer.

2. (AMENDED) [The video compression method of claim 5 wherein the step of calculating the single average value for the plurality of Cb locations comprises the step of] A video compression method for maximizing a throughput of digitized video data on a link between a digital solid-state imaging device and a host computer, comprising the steps of:

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performing the luminance (Y) domain compression of the video data on a line-by-line basis without storing video data lines or video data frames by tagging pixels in the video line on a pixel-by-pixel basis, according to differences in their luminance values;

performing the chrominance (Cr/Cb) domain averaging of the video data on a region-by-region basis without storing video data frames, wherein the step of the Cr/Cb domain compression comprises the following steps:

calculating a single average value for a plurality of Cr locations

obtaining a single Cb value for each sixteen Cb values in the 4:2:0 format, and obtaining a single Cb value for each thirty-two Cb values in the 4:2:2 format; **and**

transmitting the average Cr and Cb values to the host computer; and

wherein said Y and Cr/Cb domain compression steps are implemented in the digital solid-state imaging device hardware for real time link transmission of the compressed video data to the host computer.

8. The video compression method of claim 7 wherein the step of calculating the single average value for the plurality of Cb locations comprises the following steps:

averaging four-by-four adjacent Cb values from a region to generate a single intermediate average Cb value for each said four Cb values; and

averaging the intermediate average Cb values to obtain a single average Cb value.

Claims 9 through 17 are hereby cancelled without prejudice or disclaimer.

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~~18~~. **(AMENDED) [The controller of claim 12] In a digital video imaging device which works in the YCbCr 4:2:0 or 4:2:2 format and is attached to a host computer via a link, a pixel processing controller comprising:**

a Y domain compression module for tagging pixel locations in the Y domain according to a predetermined criteria;

a Cr/Cb domain compression module for averaging the Cr and the Cb values in the Cr/Cb domain, wherein the Cr/Cb domain compression module is adapted to obtain a single Cr value for each four Cr values, and a single Cb value for each sixteen Cb values in the 4:2:0 format, and a single Cr value for each eight Cr values, and a single Cb value for each thirty-two Cb values in the 4:2:2 format; **and**

in the Y domain a predetermined threshold value for detecting a change in the luminance value between pixels in a video line, and a predetermined value for maximum number of pixels allowed between the tagged pixels.

Claims 19 through 21 are hereby cancelled without prejudice or disclaimer.

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~~22~~. (AMENDED) **[The digital imaging device of claim 21 wherein] In a digital video imaging device which works in the YCbCr 4:2:0 or 4:2:2 format and is attached to a host computer via a link, a pixel processing controller comprising:**

an image sensor array for obtaining luminance (Y) and chrominance (Cr, Cb) values of pixels in a video line;

a Y domain compression module for tagging pixel locations in the Y domain according to a predetermined criteria, the Y domain compression module adapted to determine pixels in the video line which are tagged on a pixel-by-pixel basis, according to

differences in the pixel luminance values;

a Cr/Cb domain compression module for averaging the Cr and the Cb values in the Cr/Cb domain, the Cr/Cb domain compression module adapted to calculate a single average value for a plurality of Cr locations, and a single average value for a plurality of Cb locations;

in the Y domain a predetermined threshold value for detecting a change in the luminance value between pixels in a video line, and a predetermined value for maximum number of pixels allowed between the tagged pixels;

said link is a bandwidth-limited bus with isochronous pipes, wherein a first bus pipe transmits the Y domain values and a second bus pipe transmits the Cr/Cb domain values, and the digital imaging device is a solid-state camera working in isochronous traffic mode in the YCbCr 4:2:0 or 4:2:2 format, and the camera transmits to the host computer the tagged pixel luminance values and lengths between the tagged pixels;

the Cr/Cb domain compression module is adapted to obtain a single Cr value for each four Cr values, and a single Cb value for each sixteen Cb values in the 4:2:0 format, and a single Cr value for each eight Cr values, and a single Cb value for each thirty-two Cb values in the 4:2:2 format;

said compressed data are encoded and codes are concatenated separately in the Y domain and in the Cr/Cb domain, before the transmission to the host computer; and

said concatenation in the Cr/Cb domain produces alternative Cr-only lines and Cr/Cb lines, where each Cr-only line has only Cr values, and each Cr/Cb line has alternating Cr and Cb values.